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AMENDMENTS TO THE DRAWINGS

The attached "Replacement Sheet(s)" of drawings include(s) changes to Figure(s) 9-11. The attached "Replacement Sheet(s)," which include(s) Figure(s) 9-11, replace(s) the original sheet(s) including Figure(s) 9-11.

Attachment: Replacement Sheet(s)

REMARKS

Claims 1-3, 5-6 and 24 are now pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

DRAWINGS

The drawings stand objected to for certain informalities. Applicant(s) have attached revised drawings for the Examiner's approval. In the "Replacement Sheet(s)" Figures 9-11 have been designated by the legend --Prior Art--.

REJECTION UNDER 35 U.S.C. § 102

Claims 1-6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kyoichi (JP No. 06227381). This rejection is respectfully traversed. New Claim 24 has been added to reinstate the subject matter of Claim 4 (previously cancelled). Reconsideration is respectfully requested.

With regard to the Kyoichi reference, that reference teaches using resistance welding to fuse metals in a fashion that the Examiner has construed as a "plastic flow." In this regard, the Examiner is reading the "nickel sleeve" described in the Kyoichi reference as serving the function of a caulking member. However, in contrast to the Kyoichi teaching, the Applicants' invention effects a plastic flow of the caulking member by applying stress from the outside of the caulking member. Applicants are providing herewith dictionary definitions of "welding" and "plastic flow" for the Examiner's consideration.

As shown in the dictionary definitions of "welding" and "plastic flow", which was previously submitted, plastic flow does not occur in welding. In welding, a flow is generated by melting due to heat. On the other hand, in plastic flow, a flow occurs after the applied stress reaches a critical value, and no heat is applied. Hence, the present invention is clearly distinguished from Kyoichi (JP No. 06227381) in view of welding, and is not anticipated by Kyoichi.

The Examiner stated that "[i]t is believed that welding also occurs by applying stress from outside" in the Advisory Action. However, as mentioned above, stress is not generally applied during welding.

As an exception, in spot welding, a current is applied to a junction to produce heat, and the junction is welded by applying pressure (see an attached figure). In this case the pressure is applied to achieve a complete welding by heating evenly and to value resistance constant reducing contact resistance make а by (http://www.mech.eng.himeji.-tech.ac.jp/kikai/center/jisshuu/welding.html). Thus plastic flow does not generally occur due to the pressure. At least, Kyoichi and the dictionary definitions fail to disclose or suggest the generation of plastic flow during welding. The Examiner's above recognition appears to be incorrect. Hence, the present invention is distinguished from Kyoichi.

Furthermore, the present invention aims to solve the problem of the drop-off of welded members due to weak connection intensity, as welded members are only connected by a point contact during welding (especially during the spot welding). According to the present invention, in order to solve the problem, multipoint contacts are provided by plastic deformation.

Accordingly, in order to more fully distinguish the Applicants' invention from Kyoichi, Claim 1 has been amended to recite that plastic flow of a caulking member is performed by applying stress from the outside of the caulking member. It is respectfully submitted that Claim 1 now fully distinguishes over the art of record.

Turning now to Applicants' independent Claim 5, the issue here appears to be with regard to the term "integrally formed." The Examiner appears to take the position that Kyoichi teaches integral formation because (according to the Examiner's interpretation) once the Kyoichi external lead and lead wire are welded together they are then "integrally formed and act as one wire."

In order to obviate this rejection and more fully distinguish the Applicants' invention, Claim 5 has been amended to recite that "integrally formed" is <u>from a continuous and common piece of material</u>. It is respectfully submitted that this Amendment fully distinguishes the Applicants' invention from the Kyoichi reference.

Finally, with regard to Claim 4 (now cancelled), the Examiner has indicated that the subject matter of Claim 4 can be reinstated by a subsequent Amendment that presents the subject matter as a new claim with a new claim number. Accordingly, Applicants have added new claim 24 to this application.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office

Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated:

Bv:

Mark D. Elchuk

Reg No. 33,686

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McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS

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On the cover: Representation of a fullerene molecule with a noble gas atom trapped inside. At the Permian-Triassic sedimentary boundary the noble gases helium and argon have been found trapped inside fullerenes. They exhibit isotope ratios quite similar to those found in meterorites, suggesting that a fireball meteorite or asteroid exploded when it hit the Earth, causing major changes in the environment. (Image copyright © Dr. Luann Becker. Reproduced with permission.)

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Q123.M15 2002 503—dc21 of solvent from filter paper, leaving the solute in a ring (circular) shape; used for qualitative analysis of very small samples. { 'vīs 'rin, əv ən }

Weizācker-Williams method [QUANT MECH] A method of calculating the bremsstrahlung emitted when two particles, whose relative kinetic energies are much larger than their rest energies, collide; in the rest frame of one of the particles, the field of the other is equivalent to a set of virtual photons, and Compton scattering of these photons by the particle at rest is computed. { 'vīl,sek ər 'wil yəms ,meth əd }

Weizsaecker's theory [ASTRON] A theory of the origin of the solar system; it hypothesizes primeval turbulent eddies which become permanent and self-gravitating; Weizsaecker does not discuss the origin of the gas clouds. { 'vīt,sek:ərz,thē-ə-rē }

welcome page See home page. ('wel-kəm 'pāj)

weld [MET] A union made between two metals by welding. { weld }

weldability [MET] Suitability of a metal to be welded under specified conditions. { wel-də'bil-əd-ē }

weld bead [MET] A deposit of filler metal from a single welding pass. Also known as bead. { 'weld ,bed }

weldbonding [MET] A process for joining metals in which adhesive, typically an epoxy paste, is applied to the parts, which are then clamped together, spot-welded, and put into an oven (250°F, or 121°C, for 1 hour) to cure the adhesive. { 'weld band in }

weld decay [MET] Intercrystalline corrosion of austenitic stainless steels near welded areas; caused by chromium carbide precipitation along grain boundaries of alloy subject to prolonged heating in the temperature range 400–850°C. { 'weld di.ka }

weld delay time [MET] Delay of the time current in spot, seam, or projection welding with respect to starting the forge delay timer used to synchronize pressure and heat. { 'weld di'lā ,tīm }

welded tuff [PETR] A pyroclastic deposit hardened by the action of heat, pressure from overlying material, and hot gases. Also known as tuff lava. { 'wel-ded 'taf }

welder [MET] 1. A machine used in welding. Also known as welding machine. 2. A person who performs a welding operation. { 'wel'der }

weld gage [ENG] A device used to check the shape and size of welds. { 'weld ,gāj }

welding [GEOL] Consolidation of sediments by pressure; water is squeezed out and cohering particles are brought within the limits of mutual molecular attraction. [MET] Joining two metals by applying heat to melt and fuse them, with or without filler metal. { 'weld-in}

welding current [ELEC] The current that flows through a circuit while a weld is being made. { 'weld in ,ko ront } welding cycle [MET] The complete sequence of events

involved in making a resistance weld. { 'weld in sī kəl } welding electrode [MET] 1. In arc welding, the current-carrying rod or rods used to strike an arc between rod and work. 2. In resistance welding, the component of a machine through which current and pressure are applied to the work.

{ 'weld in i, lek, trod }
welding force See electrode force. { 'weld in , fors }

welding generator [ELEC] A generator used for supplying the welding current. { 'weld-in jen-a,rād-ar }

welding ground See work lead. { 'weld in ,graund } welding machine See welder. { 'weld in ,ma, shēn }

welding rod [MET] Filler metal in the form of a rod or heavy wire. { 'weld in , rad }

welding schedule [MET] A record of all welding machine settings plus identification of the machine needed to produce a weld for a given material of a given size and finish. { 'weldin, 'skej' əl }

welding sequence [MET] The order for welding component parts of a weldment or structure. { weld in , se kwons }

welding stress [MET] Residual stress resulting from localized heating and cooling during welding. { 'weld in ,stress } welding tip [ENG] A replaceable nozzle for a gas torch used in welding. [MET] An electrode used in spot or projection welding. { 'weld in ,tip }

welding torch [ENG] A gas-mixing and burning tool for the welding of metal. { 'weld in, torch }

welding transformer [ELEC] A high-current, low-voltage

power transformer used to supply current for welding { 'weld-in tranz, for-mər }

weld interval [MET] The total heat and cool times for making one multiple-impulse weld. { 'weld in ter vel } \frac{1}{2} \frac

interval. ('weld in tor vol (im or)

weld line [ENG] See flow line. [MET] The junction of the
weld metal and base metal, or the junction of base-metal parts
when filler metal is not used. { 'weld |lin }

weld mark See flow line. { 'weld ,mark } digiow weldment [ENG] An assembly or structure whose component parts are joined by welding. { 'weld mant }

weld metal [MET] The metal constituting the fused zone inv spot, seam, or projection welding. { 'weld med al } and a weld time [MET] The time that the welding current is applied to the work in single-impulse and flash welding. { 'weld...tim }

weld zone [MET] The region of a weld that includes both the weld metal and the heat-affected zone. { 'weld 'zon'}, ...
Welge method [PETRO ENG] A method of calculation of they anticipated oil-recovery performance of a gas-cap-drive oil rest ervoir. { 'wel'ge', method }

well [BUILD] An open shaft in a building, extending vertilated through floors to accommodate stairs or an elevator.

[ENG] A hole dug into the earth to reach a supply of watch oil, brine, or gas. { wel }

wellbore See borehole. { 'wel,bor }

wellbore hydraulics [PETRO ENG] A branch of oil production engineering that deals with the motion of fluids (oil, gas, or water) in wellbore tubing or casing, or the annulus between tubing and casing. { 'wel,bor hī'dro liks }

welcome page See home page. ('wel-kəm pāj)
well completion [PETRO ENG] The final sealing off of a
drilled well (after drilling apparatus is removed from the borel
hole) with valving, safety, and flow-control devices. ('we'
kəm,ple-shən')

well conditioning [PETRO ENG] 1. Preparation of a well for sampling procedures by control of production rate and associated pressure drawdown. 2. Removal of accumulated scale, wax, mud, and sand from the inner surfaces of a wellbore of breakage of water blocks to increase production of oil or easily well kon, dish on in }

well core [ENG] A sample of rock penetrated in a well of other borehole obtained by use of a hollow bit that cuits a circular channel around a central column or core. { 'wel' kor' well-deck vessel [NAV ARCH] A merchant vessel having sunken deck fitted between the forecastle and a long poop of continuous bridge house or raised quarterdeck. ('wel def yes al }

well drill [MECH ENG] A drill, usually a churn drill, used to drill water wells. ('wel dril)

well-formed formula [MATH] A finite sequence or string of symbols that is grammatically or syntactically correct for a given set of grammatical or syntactical rules. { 'well formy for myo-lo}

wellhead [CIV ENG] The top of a well. [HYD] The place where a stream emerges from the ground. ('wel hed | folial wellhole [MIN ENG] 1. A large-diameter vertical hole used in quarries and opencast pits for taking heavy explosive charges in blasting. 2. The sump, or portion of a shaft below the place where skips are caged at the bottom of the shaft, in wings water collects. ('wel,hol)

well injectivity [PETRO ENG] The ability of an injection of the water or gas) to receive injected fluid; can be negatively in the enced by formation plugging, borehole scale, or liquid blocking around the lower end of the borehole. { 'wel, in jek'tiv adjected logging [ENG] The technique of analyzing recording the character of a formation penetrated by a dull hole in petroleum exploration and exploitation work of the light in the light in the character of a formation penetrated by a dull hole in petroleum exploration and exploitation work of the light in the light in the character of a formation penetrated by a dull hole in petroleum exploration and exploitation work of the light in the

well-ordered set [MATH] A linearly ordered set where the subset has a least element. { 'wel 'or dard 'set } well-ordering principle [MATH] The proposition that every set can be endowed with an order so that it becomes an ordered set; this is equivalent to the axiom of choicen [In well or dar in 'prin sa pal]

well performance [PETRO ENG] The measurement well's production of oil or gas as related to the well's anticipated

lasmoditrophobiast See syncytiotrophoblast. (plaz·mō· dinaf ə blast }

smodium [MICROBIO] The noncellular, multinucleate, kilylike, ameboid, assimilative stage of the Myxomycetes. { mc·sb·om'zald;}

jasmodroma [INV 200] A subphylum of the Protozoa, chiding Mastigophora, Sarcodina, and Sporozoa, in some axonomic systems. (plaz'ma dra ma)

hasmogamy [INV 200] Fusion of protoplasts, without miclear fusion, to form a multinucleate mass; occurs in certain prozoans. { plaz'mäg·ə·mē }

Physical Phys. An isolated collection of electrons, ions, the body together for a duration many agricult (PHYS) An isolated collection of electrons, ions, and fleutral particles which holds together for a duration many se as long as the collision times between particles. plaz,moid }

pasmolysis [PHYSIO] Shrinking of the cytoplasm away hom the cell wall due to exosmosis by immersion of a plant cell in a solution of higher osmotic activity. { plaz'māi ə səs } smon [GEN] The cytoplasmic genetic system in eukaryconsisting primarily of mitochondrial deoxyribonucleic Consisting primarily of mitochondrial deoxyribonucleic Ha(DNA) and chloroplast DNA. [SOLID STATE] A quanfunn of a collective longitudinal wave in the electron gas of a

plasmosome See nucleolus. { 'plaz·mə som }

pasmotomy [INV 200] Subdivision of a plasmodium into MATER A plastic mixture of

[MATER] A plastic mixture of various materials, such faline or gypsum, and water which sets to a hard, coherent bld [plas tor]

Baster bat [GRAPHICS] Basic working surface on which

is turned or modeled. { 'plas tər 'bat }

asterboard [MATER] A large, thin sheet of pulpboard. merior felt bonded to a hardened gypsum plaster core and ted as a wall backing or as a substitute for plaster.

asigr.coat [BUILD] A thin layer of plaster lining walls in buildings. { 'plas-tər |kōt }

ster conglomerate [GEOL] A conglomerate composed included derived from a partially exhumed possible forming a wedgelike mass of its flank. { 'plasting lam 2-rat }

ster ground [BUILD] A piece of wood used as a gage to plant the thickness of a plaster coat placed on a wall; usually at around windows and doors and at the floor. { 'plas ter

The consisting with the powder consisting with the powder consisting with the powder consisting with the consistency w pentally of the neminyurate of calcining gypsum until parially dehydrated; forms with water a paste that quickly

parially dehydrated; forms with water a paste that quickly led for casts and molds, building materials, and surgical legs. Also known as calcined gypsum. ('plas ter every shooting [ENG] A surface blasting method used place fock drill is necessary or one is not available; consists legs a charge of gelignite, primed with safety fuse and ready; in close contact with the rock or boulder and covering updately with stiff damp clay. ('plas ter 'shid-in')

[MATER] A polymeric material (usually organic) of molecular weight which can be shaped by flow; usually to the final product with fillers, plasticizers, pigments, abilizers included (versus the resin, the homogeneous menuces included (versus die lesin, die nomogeneous Etylene, and urea-formaldehyde. [MECH] Displaying, chated with, plasticity. { 'plastik }

Also known as plastify. { 'plas-ta,kāt }

Call [NUCLEO] A large gamma-ray detector used at the large gamma accelerators, and consisting of about 1400 leadbeam accelerators, and consisting of accelerators for recording photons that completely surround

miof collision. { 'plas-tik 'bol }

bonding [ENG] The joining of plastics by heat, solalbesives, pressure, or radio frequency. { 'plas-tik

bronze [MET] A copper alloy containing lead, usuthe order of 30%, of sufficient plasticity to make a tering. ('plas-tik 'bränz)

ement [MATER] A plastic material used to seal nar-ings in buildings. { 'plas-tik si'ment }

plastic clay [MATER] Fireclay which forms a moldable mass when mixed with water. { 'plas tik 'klā }
plastic collision [MECH] A collision in which one or both of

the colliding bodies suffers plastic deformation and mechanical energy is dissipated. { 'plas tik kə'lizh ən }

plastic deformation [MECH] Permanent change in shape or size of a solid body without fracture resulting from the application of sustained stress beyond the elastic limit. { 'plas-tik ,dē,fór'mā·shən }

plastic design See ultimate-load design. { 'plas tik di'zīn } plastic dielectric [MATER] A plastic used in an application in which its high resistance, dielectric strength, or other electrical properties are important, such as for electrical insulation or in a capacitor. { 'plas·tik ,dī·ə'lek·trik }

plastic equilibrium [GEOL] State of stress within a soil mass or a portion thereof that has been deformed to such an extent that its ultimate shearing resistance is mobilized. { 'plas-tik ,ē·kwə'lib·rē·əm }

plastic explosive See high-explosive plastic. { 'plas tik ik's-

plastic film [MATER] Film with thickness from 0.0015 to 0.006 inch (0.0038 to 0.015 centimeter); made from polyvinyl chloride, polyethylene, polypropylene, polystyrene, Mylar, and other resins; used for wrapping, sealing, garment waterproofing, and coating wood, paper, or fabric. { 'plas-tik 'film }

plastic film capacitor [ELEC] A capacitor constructed by stacking, or forming into a roll, alternate layers of foil and a dielectric which consists of a plastic, such as polystyrene or Mylar, either alone or as a laminate with paper. { 'plas tik film kə'pas-əd-ər }

plastic flow [PHYS] Rheological phenomenon in which flowing behavior of the material occurs after the applied stress reaches a critical (yield) value, such as with putty. { 'plastik 'flo)

plastic foam See expanded plastic. { 'plas-tik 'fom }

plasticity [MECH] The property of a solid body whereby it undergoes a permanent change in shape or size when subjected to a stress exceeding a particular value, called the yield value. { plas'tis-əd-ē }

plasticity index [GEOL] The percent difference between moisture content of soil at the liquid and plastic limits. { plas'tis əd ē ,in,deks }

plasticize [ENG] To soften a material to make it plastic or moldable by adding a plasticizer or by using heat. { 'plas-

plasticizer See flexibilizer. { 'plas-tə,sīz-ər }

plasticizing oil [MATER] Coal tar distillate or solvent naphthas distilling in a wide range above 300°C; used with plastics as a plasticizer. { 'plas tə sīz iŋ oil }

plasticlast [GEOL] An intraclast consisting of calcareous mud that has been torn up while still soft. { 'plas to klast } plastic limit [GEOL] The water content of a sediment, such as a soil, at the point of transition between the plastic and semisolid states. { 'plas-tik 'lim-ət }

plasticorder [ENG] Laboratory device used to predict the performance of a plastic material by measurement of temperature, viscosity, and shear-rate relationships. Also known as plastigraph. { 'plas tə,kord ər }

plasticoviscosity [MECH] Plasticity in which the rate of deformation of a body subjected to stresses greater than the yield stress is a linear function of the stress. { |plas-tə-kōvi'skäs·əd·ē }

plastic paint [MATER] Paint composed of a plastic (such as vinyl or nitrocellulose) in a solvent. { 'plas-tik ,pant }

plastic plate [ELECTR] A plate of plastic dielectric material used as a base for a semiconductor device. [GRAPHICS] A direct printing plate formed on a plastic base. { 'plas-tik 'plat }

plastic relief map [MAP] A topographic map printed on plastic and then molded by heat and pressure into a threedimensional form to emphasize the relief. { 'plas tik ri'lef map }

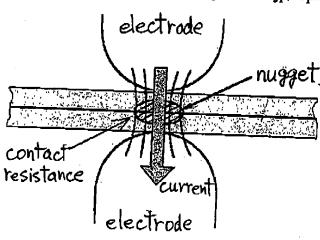
plastic semiconductor [MATER] An organic plastic resin with a conjugated double-bond structure, such as polyacetylene; the material is a semiconductor due to resistance of electrons to transfer from one molecule to another. { 'plas·tik 'sem·ikən.dək tar l

plastic shading See hill shading. { 'plas-tik 'shād-iŋ }





HP: http://www.koyogiken.co.jp/top.html



general spot welder